

Amendment  
Serial No. 10/092,526  
Attorney Docket No. 981380A

**AMENDMENTS TO THE CLAIMS:**

**Listing of claims:**

This listing of claims replaces all prior versions and listings of claims in the application.

Claims 1 - 12 (Canceled)

Claim 13 (Currently Amended) A method for fabricating a semiconductor device comprising the steps of:

forming a first semiconductor layer over an InP substrate;

forming a base layer of a carbon-doped  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$  layer on the first semiconductor layer;

forming a second semiconductor layer on the base layer;

patterning the second semiconductor layer in a mesa-shape;

forming a base contact layer of a carbon-doped GaAsSb layer or a carbon doped GaInAsSb layer on the base layer exposed by patterning the second semiconductor layer; and

forming a base electrode on the base contact layer,

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in which the first semiconductor layer or the second semiconductor layer is an emitter layer of an InP layer.

Claim 14 (Withdrawn) A method for fabricating a semiconductor device according to claim 13, further comprising, after the step of patterning the second semiconductor layer, a step of removing the base contact layer in a exposed region which is exposed by patterning the second semiconductor layer, wherein

in the step of forming the base contact layer, the base contact layer having a side surface connected to the base layer is formed on the first semiconductor layer exposed by removing the base layer.

Claim 15 (Original) A method for fabricating a semiconductor device according to claim 13, wherein

in the step of forming the base layer, the base layer of an InGaAs layer which corresponds to the  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$  layer whose As composition y is 1, or a GaAsSb layer which corresponds to the  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$  layer whose In composition X is 0 is formed.

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Claim 16 (Withdrawn) A method for fabricating a semiconductor device according to claim 14, wherein

in the step of forming the base layer, the base layer of an InGaAs layer which corresponds to the  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$  layer whose As composition y is 1, or a GaAsSb layer which corresponds to the  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$  layer whose In composition X is 0 is formed.

Claim 17 (Original) A method for fabricating a semiconductor device according to claim 13, wherein

in the step of forming the base contact layer, the base contact layer is formed of a material which lattice-matches with a material forming the base layer.

Claim 18 (Withdrawn) A method for fabricating a semiconductor device according to claim 13, wherein

in the step of forming the base contact layer, the base contact layer is formed of a carbon-doped GaAsSb layer or a carbon-doped GaInAsSb layer.

Claim 19 (Withdrawn) A method for fabricating a semiconductor device according to claim 14, wherein

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in the step of forming the base contact layer, the base contact layer is formed of a carbon-doped GaAsSb layer or a carbon-doped GaInAsSb layer.

Claim 20 (Previously Presented) A method for fabricating a semiconductor device according to claim 13, further comprising, before the step of forming the base contact layer,

a step of thermal-treating for eliminating hydrogen in the base layer introduced into the base layer during the deposition of the base layer by MOCVD.

Claim 21 (Original) A method for fabricating a semiconductor device according to claim 13, further comprising, after the step of patterning the second semiconductor layer,

a step of forming a sidewall insulation film on a side wall of a mesa of the second semiconductor layer.

Claim 22 (Withdrawn) A method for fabricating a semiconductor device according to claim 14, further comprising, after the step of patterning the second semiconductor layer,

a step of forming a sidewall insulation film on a side wall of a mesa of the second semiconductor layer.

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Claim 23 (Withdrawn) A method for fabricating a semiconductor device according to claim 13, further comprising, after the step of forming the base contact layer, a step of forming a surface passivation layer on the base contact layer for protecting the base contact layer.

Claim 24 (Withdrawn) A method for fabricating a semiconductor device according to claim 14, further comprising, after the step of forming the base contact layer, a step of forming a surface passivation layer on the base contact layer for protecting the base contact layer.

Claim 25 (Canceled)

Claim 26 (Withdrawn) A method for fabricating a semiconductor device according to claim 14, wherein the first semiconductor layer or the second semiconductor layer is an emitter layer of an InP layer.